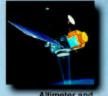
Building a Sustained Ocean Observing System for Climate







3°x3° Argo Float Array Obse

Global Ocean Obse for Climate and Ma



NOAA's Climate Observation Program
The Ocean Component





5° x 5° Drifting



Moored Array



S'S PARGO ARRIV TRECAUCE STATEMS INDOMEDBIOIS S'S PORTTERARRY CHRUSES

Phased Implementation Plan, Including International Contributions												
·	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Tide Gauges	40	40	45	45	5	80	8	86	86	86	86	Operational GPS/DORIS Stations
Surface Drifting Buoys	807	671	810	810	1050	1250	1250	1250	1250	1250	1250	Number of buoys
Tropical Moored Buoys	77	77	79	79	8	87	99	90	90	90	90	Number of moorings
Ships of Opportunity	28	24	26	75	29	2	35	41	41	41	41	High resolution and frequently repeated lines occupied
Argo Floats	200	310	1100	2000	3000	3000	3000	3000	3000	3000	3000	Number of floats
Reference Stations	1	2	3	4	6	11	16	29	29	29	29	Number of flux moorings
Coastal Moorings	0	0	0	0	15	40	80	120	150	150	150	Moorings with climate sensors
Ocean Carbon Network	0	2	4	4	12	20	30	38	40	40	40	Number of flux sites/lines, One inventory per 10 years
Dedicated Ship Time	250	250	250	250	430	670	700	780	820	820	820	Days at sea
Satellite Altimeter	0	0	0	0	0	25	50	75	100	100	100	Percent transition to Sustained operations
		lni	tial Oce	an Obs	erving	System	n Miles	tones				='

Mission: Build and sustain a global climate observing system that will respond to the long-term observational requirements of the operational forecast centers, international research programs, and major scientific assessments.



THE NEED FOR A SYSTEMS APPROACH TO CLIMATE OBSERVATIONS

Trenberth, Karl, and Spence

- In addition to acquiring new observations, essential <u>infrastructure</u> has to be established to ensure:
 - Integrity and continuity
 - Analysis into products
 - Assessment of why climate anomalies have arisen
 - Links to modeling and research
 - Clear delineated responsibility for oversight and health of the system, and resources to build and sustain under the 10 principles

Objectives Climate Observation Program Workshop

- Institute an Annual Program Review
- Design a framework for regular reports on the state of the ocean and the adequacy of the observing system for climate
- Design a framework for implementing expert teams to evaluate the skill of ocean products and the effectiveness of the observing system

Annual Program Review

- PI meeting
- Status and Accomplishments -- Posters
- Requirements/adequacy -- Presentations
 - Customers -- forecast, assessment, research
 - Regular user feedback = "user-driven" system
- "Partnerships are central"
 - Intra-Program
 - System -- in situ, satellite, data, modeling
 - Internal-External
- Strategic/tactical program planning
- External review

Regular reports on the state of the ocean and the adequacy of the observing system for climate

- Inform
 - Ourselves
 - Our Customers
 - Our Partners
 - Public
- Organizing framework for Program direction
 - System effectiveness, efficiency, evolution
- System Approach
 - "Essential infrastructure has to be established"
- NOAA contribution to CCSP, Ocean.US, etc.

Design a <u>Framework for</u> <u>Implementing Expert Teams</u>

- Continually evaluate:
 - The effectiveness of the networks in meeting the performance measures
 - The skill of ocean products
- Recommend:
 - Product improvements
 - Where additional sampling is needed or redundancies are not needed
 - Better utilization of existing and new in situ and satellite data
- Assess the impacts of proposed changes to the system

Agenda

- Session 1 -- Partnerships and Requirements
- Session 2 -- Annual Report
- Poster Session -- continuous
- Session 3 -- Expert Teams and the Annual Report
 - Working Group 1: Report structure
 - Working Group 2: Sea level
 - Working Group 3: Air-sea exchange of heat, water, carbon
 - Working Group 4: Ocean content and transport of heat, water, carbon
- Session 4 -- Putting it together
- Session 5 -- Program and Budget

